SYSTEM SUPPORT DIRECTIVE

ASR-9 | 6310 | SSM- ASR9- 002

System Support Modification

TRANSMITTER POWER INTERRUPT AND BLOWER MOTOR FUSE

Highlights

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February 6, 1998

1. PURPOSE. This directive authorizes a modification to the Airport Surveillance Radar-9 (ASR-9) transmitter hardware. The purpose of this modification is to eliminate the outages due to power fluctuations and to properly size the blower motor fuses to eliminate nuisance blown fuses.

2. DISTRIBUTION. This directive is distributed to selected field offices and services within Washington headquarters, regional Airway Facilities divisions, William J. Hughes Technical Center, Mike Monroney Aeronautical Center, and the Airway Facilities offices having the following facilities/equipment: ASR-9.

3. WITHDRAWALS/CANCELLATIONS. Not applicable.

4. REFERENCES. Configuration Control Decision (CCD) N15754.

5. BACKGROUND.

   a. The ASR-9 transmitter has had a history of problems when a site experiences single phase power loss. The transmitter will fault out and a technician is required to be onsite to return the transmitter to service. With this modification, the three phase power monitor A13 will monitor the input power and drop all three phases to the transmitter on loss of a single phase. When normal power is available, the power monitor unit will return power to the transmitter. The existing transmitter circuitry will recycle power to the transmitter without any faults.

   b. The blower motor fuses were sized for the original transmitter air flow design. When the original transmitter cooling design was changed, the load was increased on the blower motor. The 10 amp fuses are no longer large enough and are being replaced with the MDA 15 amp fuses.

Distribution: Selected Airway Facilities Field and Regional Offices

Initiated By: AOS-270

6. APPLICATION. This modification is applicable to all ASR-9 sites.

7. MATERIALS REQUIRED. The materials required to perform this modification will be provided in the form of a modification kit. This kit, National Stock Number (NSN 0000-00-012-1477), consists of the following items:

ITEM	DESCRIPTION	NSN/PART NUMBER	QUANTITY
a.	Three Phase Power Monitor	5998-01-439-7942/A13	3 ea.
b.	MDA 15 amp Fuses	5920-00-177-2148	5 ea.
c.	Mounting Hardware - Lock Nuts	10-32	4 ea.
d.	Mounting Hardware - ¾ Inch Screws	8-32x3/4	4 ea.
e.	Wire Markers	A13TB1-1	1 ea.
		A13TB1-2	1 ea.
		A13TB1-3	1 ea.
		A13TB1-4	1 ea.
		A13TB2-1	3 ea.
		A13TB2-2	3 ea.
		A13TB2-3	3 ea.
		A13TB2-4	2 ea.
f.	Hex Standoff	1957-12	3 ea.
g.	Black Fuse Face Plate		2 ea.
h.	Adhesive	MIL-A-46050	1 ea.
i.	Teflon Spiral Wrap	9330-01-169-5995	3 ft.

8. SOURCE OF MATERIALS. The materials required to perform this modification will be supplied as a kit (NSN 0000-00-012-1477) by the Federal Aviation Administration (FAA) Logistics Center for issue to the sites. Personnel should follow the normal procedures for requesting these items from the FAA Logistics Center. If problems arise in receiving the kit, site personnel should contact the Supply Management Division, AML-600, National Airspace System (NAS) Section, AML-622, directly by telephoning (405) 954-4421.

9. SPECIAL TOOLS AND TEST EQUIPMENT REQUIRED. The following tools and test equipment are required to complete this modification on an ASR-9 type system:

ITEM	DESCRIPTION	QUANTITY
a.	Multimeter	1
b.	Small Wire Cutters	1
c.	11/32-inch Wrench	1
d.	Flat Blade and Phillips Head Screwdrivers	1
e.	Flat Blade Offset Screwdrivers	1
f.	Heat Gun	1

10. PROCEDURE TO BE PERFORMED BY. This modification is to be perfomed by field maintenance personnel or as determined by the Regional Airway Facilities division manager.

11. WHEN MODIFICATION IS TO BE PERFORMED. This modification is to be performed as soon as possible after receipt of this directive, the required materials, or as directed by the Regional Airway Facilities division manager (4 hours per channel).

12. ESTIMATED TIME REQUIRED. This procedure will require one technician for 8 employee-hours.

13. DISPOSITION OF SURPLUS PARTS. Retain surplus parts in site stock.

14. PROCEDURE. The ASR-9 redundant channel will be out-of-service during the installation and testing of this modification. Both transmitter channels will be modified. The following procedures should be followed for this modification:

> **NOTE:** Coordinate the redundant channel down-time with the Air Traffic Control (ATC) supervisor.

a. Refer to TI 6310.25, Paragraph 3.2.1, Transmitter Channel A/B (Unit 1/6), Paragraph 3.2.1, Placing the Transmitter in Maintenance Mode.

b. Turn off HIGH VOLTAGE POWER circuit breaker CB1 and AUXILIARY POWER circuit breaker CB2.

c. At the GFE power panel, remove power to the transmitter channel under modification.

d. Locate TB2, TI 6310.25, Figure 11-11, Sheet 2, Transmitter Channel A/B Major Components, to use the multimeter to verify there is no voltage to the transmitter cabinet. Check for ac voltage at terminals 1, 2, and 3 using terminal 4 as common. Remove the protective faceplate from the terminal block TB2.

e. Verify all wires to TB2 are labeled. If they are not, label them as per Table.

f. Disconnect all wires from TB2.

g. Remove the front screw on the air deflector, located to the right of TB2, and move the deflector to the right to gain working room.

NOTE: There is no loose hardware underneath that screw.

h. Remove the terminal block TB2.

NOTE: There is loose hardware underneath.

i. Cut the tie wraps holding the wires disconnected from TB2 (paragraph 7e). It will be necessary to remove them back to the tie wrap attaching the bundle to the top of the cabinet.

j. Insert the new wire markers (paragraph 7e) as per figure 14-1.

k. Shrink wire markers with heat gun.

l. Remove bracket from the Three Phase Power Monitor (paragraph 7a).

TABLE		
LOCATION	**OLD WIRE MARKER**	**NEW WIRE MARKER**
TB2-1A	BLUE (LARGE WIRE)	A13 TB1-1
TB2-2A	RED (LARGE WIRE)	A13 TB1-2
TB2-3A	BLACK (LARGE WIRE)	A13 TB1-3
TB2-4A	WHITE (LARGE WIRE)	A13 TB1-4
TB2-1A	TB2-1A	A13 TB2-1
TB2-2A	TB2-2A	A13 TB2-2
TB2-3A	TB2-3A	A13 TB2-3
TB2-1B	TB2-1B	A13 TB2-1
TB2-2B	TB2-2B	A13 TB2-2
TB2-3B	TB2-3B	A13 TB2-3
TB2-4B	TB2-4B	A13 TB2-4
TB2-1B	TB2-1B	A13 TB2-1
TB2-2B	TB2-2B	A13 TB2-2
TB2-3B	TB2-3B	A13 TB2-3
TB2-4B	TB2-4B	A13 TB2-4

m. Mount the bracket where the terminal strip was removed with hardware provided in paragraphs 7c and 7d. Locking nuts are on the bottom and the screws are on the top.

n. Route the set of input cables (cables to A13 TB1) to the left of the mounting bracket. Route the three sets of output cables (cables to A13 TB2) around the back and to the right of the mounting bracket.

o. Remove the faceplate from the Power Monitor, A13.

p. Mount Power Monitor, A13, in bracket and secure with the two screws on each side.

q. Connect the input power cables labeled A13 TB1-1, A13 TB1-2, A13 TB1-3, and A13 TB1-4 to TB1 on the left side of the power monitor.

r. Connect the output power cables to A13 TB2. For the cables connected to A13 TB2-1, A13 TB2-2, and A13 TB2-3, the fan-out for the three lugs makes it necessary to separate one of the cables. This will be accomplished by placing a hex standoff (figure 1-2 in appendix A) between the cable lugs. Remove the screw from the terminal board. Mount two of the cables to TB2 with the hex standoff and mount the third cable on top of the standoff using the screw, which was removed. (As seen in appendix A, figure.)

s. Dress the cables using the spiral wrap (supplied) and the tie wraps (not supplied). Ensure cables are free of all sharp edges.

t. Secure the faceplate on the Power Monitor, A13. Make sure the Power Monitor Normal/Bypass switch is in the normal position.

u. Secure the air deflector.

v. Replace the Main Blower 10 amp fuses F7, F8, and F9 as shown in TI 6310.25, figure 11-11, sheet 3 with the MDA 15 amp fuses. Glue the MDA 15 amp label over the existing 10 amp label for the Main Blower fuses.

w. Restore power to the transmitter in the GFE power panel.

x. Refer to TI 6310.25, Paragraph 3.2.3, Returning the Transmitter to system control.

15. TEST AFTER MODIFICATION. To verify the A13 unit is operational, follow the following procedures:

a. Interrupt Phase A by depressing Power Monitor, A13, Fault Insert button A. All power should be removed from the transmitter and the Phase A counter should increment by one. Power should recycle back normally when the button is released.

b. Interrupt Phase B by depressing Power Monitor, A13, Fault Insert button B. All power should be removed from the transmitter and the Phase B counter should increment by one. Power should recycle back normally when the button is released.

c. Interrupt Phase C by depressing Power Monitor, A13, Fault Insert button C. All power should be removed from the transmitter and the Phase C counter should increment by one. Power should recycle back normally when the button is released.

16. RESULT OF MODIFICATION. This modification will protect the ASR-9 transmitter in the event of a single phase power loss. Proper sizing of the transmitter blower motor fuses will prevent blown fuses and subsequent transmitter outages. In the event of a failure of these components, replacement parts will be available onsite.

17. CHANGES TO INSTRUCTION BOOKS. Two sets of page changes are attached. One set is to remain with the directive and the other set is to be inserted in the manual as instructed by the page control chart.

18. CHANGES TO INSTALLATION DRAWINGS. Not applicable.

19. CHANGES TO RECORDED DATA. Prepare FAA Form 6032.1, Airway Facilities Modification Record, showing this directive number and date.

20. ADDRESS CHANGES. Submit facility address, directive copy count, and additions or deletions via cc:Mail to AOS-530.

21. CLARIFICATION OR COMMENTS. Forward any recommendations for changes to this directive through normal channels to the National Airways Systems Engineering Division, AOS-200, Branch 270.

22. STATUS ACCOUNTING. Use the Maintenance Management System (MMS) application Log Equipment Modification (LEM) function to report the completion of this modification. Verify that an "N" is in the "REP COD" field to ensure that the log will be upwardly reportable to the national database for access by AOS. The SSM Number should be entered into the LEM fields as follows:

a. Chapter: ASR9

b. Change: 002

23. RECOMMENDATIONS FOR CHANGES. Forward any recommendations for changes to this directive through normal channels to the National Airways Systems Engineering Division, AOS-200, Branch 270.

for James W. Pritchard
George W. Terrell
Program Director for Operational Support

2-6-98
Date

LIST OF APPENDIXES AND ATTACHMENTS

Item	Description	Quantity
APPENDIX	FIGURE. A13TB2	1

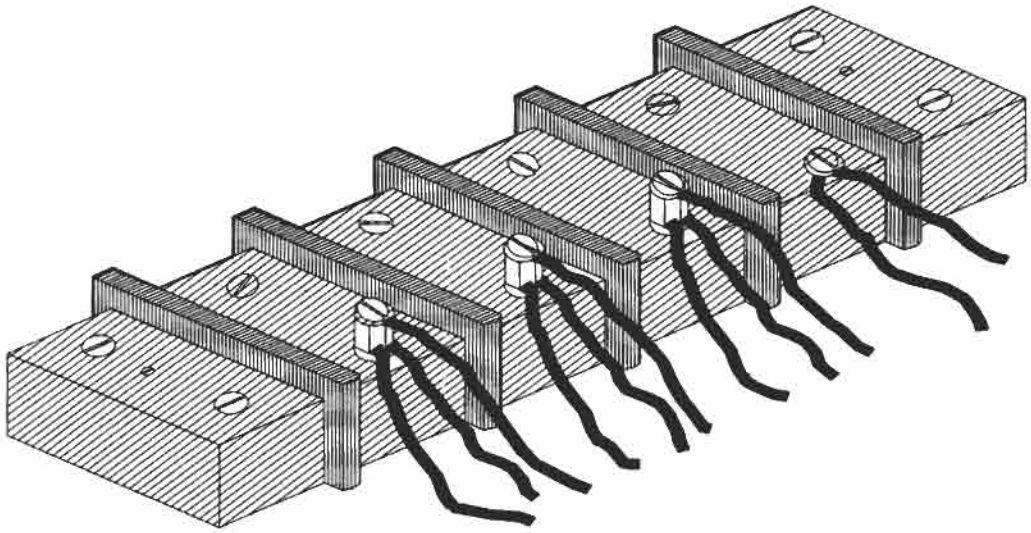

FIGURE. A13TB2